



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,471	05/07/2004	Irene Chen	UTEP0012USA	3470

27765 7590 01/31/2007
NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION
P.O. BOX 506
MERRIFIELD, VA 22116

EXAMINER

VAN, LUAN V

ART UNIT	PAPER NUMBER
----------	--------------

1753

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/31/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/709,471

Applicant(s)

CHEN ET AL.

Examiner

Luan V. Van

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1 and 2-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reid in view of Pelligrino.

Regarding claim 1, Reid teaches a method of fabricating a precision screen (i.e., broadly interpreted as a stamper) with microstructure patterns, the method comprising: providing a substrate 20 (Figs. 1-11); forming a first patterned layer 24 (Fig. 4) on the substrate, a pattern of the first patterned layer being complementary to the microstructure patterns; forming a second patterned layer 24' (Fig. 9) on the substrate; and performing an electroforming process (column 1 lines 8-11) by taking the second patterned layer as a growth stop wall.

Reid differs from the instant claims in that the reference does not explicitly teach defining an edge of the stamper.

It is conventionally known in the art to use a photo resist mask to define the edges of an electroplated pattern. Pelligrino, for example, teaches using a photoresist layer 14 (Fig. 2-5) to define the edges of an electroplated pattern on a substrate.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Reid by defining the edge of the device with photoresist as taught by Pelligrino, because it would produce an electroplated film, e.g. stamper, having straight and perpendicular sidewalls (column 6 lines 12-18 of Pelligrino).

Regarding claim 2, Reid teaches forming a seed layer 21 above the substrate.

Regarding claim 4, Reid teaches the seed layer is between the substrate and the first patterned layer (Fig. 4).

Regarding claim 5, Reid teaches the seed layer is a metal layer (Fig. 2).

Regarding claim 6, Reid teaches a glass substrate but does not explicitly teach the substrate of the instant claim. Pelligrino teach a conductive material substrate (column 4 lines 46-60). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Reid by using the conductive substrate of Pelligrino, because a conductive substrate has low coefficient of thermal expansion (column 4 lines 46-60 of Pelligrino).

Regarding claim 7, Reid teaches the second patterned layer does not overlap the first patterned layer, since the second patterned layer is deposited on the electroplated copper.

Regarding claim 8, Reid teaches the thickness of the second patterned layer is greater than the thickness of the electroplated nickel (Fig. 10), although Reid does not explicitly teach that the thickness of the second patterned layer is greater than the entire precision screen. In addition, Pelligrino teach the thickness of the electroplated material should not exceed the depth defined by the photoresist channels in order to prevent mushrooming of the electrodeposited material (column 6 lines 6-12). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Reid by using a thickness of the second patterned layer greater than the electroformed device as taught by Pelligrino, because it would prevent mushrooming of the electrodeposited material (column 6 lines 6-12 of Pelligrino).

Regarding claim 9, Reid teaches the first patterned layer comprises a photosensitive material (Fig. 3).

Regarding claim 10, Reid teaches the first patterned layer comprises a positive photoresist layer (Fig. 3).

Regarding claim 11, Reid teaches the second patterned layer comprises a photosensitive material (Fig. 8).

Regarding claim 12, Reid teaches the second patterned layer comprises a positive photoresist layer (Fig. 8).

Regarding claim 13, Reid does not explicitly teach the first patterned layer is a conductive material. However, it would have been within the ability of one having ordinary skill in the art to have selected a conductive material suitable for forming a pattern.

Regarding claim 14, the second patterned layer 24' of Reid is broadly interpreted to be an isolating material.

Regarding claim 15, Reid teaches releasing the stamper from the substrate so as to produce the complete stamper without a further cutting process (Figs. 11-12).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reid in view of Pelligrino, and further in view of Tabuchi et al.

Reid and Pelligrino teach the method as described above. Reid differs from the instant claims in that the reference teaches depositing the seed layer prior to forming the first pattern layer but does not explicitly teach depositing the seed layer after forming the first pattern layer.

Tabuchi et al. teach forming a seed layer 3 (Fig. 4C) that covers the first pattern layer.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Reid and Pelligrino by depositing the seed layer over the first pattern layer as taught by Tabuchi et al., because selection of the order of depositing the seed layer and first pattern layer is prima facie obviousness in the absence of unexpected result (MPEP 2144.04(C)).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luan V. Van whose telephone number is 571-272-8521. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LWV
January 19, 2007


NAM NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700